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PART IV:

DEPARTMENT OF TRANSPORTATION

Coast Guard

■

TANK VESSELS CARRYING OIL IN DOMESTIC TRADE

Protection of Marine Environment

Title 33—Navigation and Navigable Waters

CHAPTER I—COAST GUARD, DEPARTMENT OF TRANSPORTATION

[CGD 74-32]

PART 151—OIL POLLUTION REGULATIONS

PART 157—RULES AND REGULATIONS FOR PROTECTION OF THE MARINE ENVIRONMENT RELATING TO TANK VESSELS CARRYING OIL IN DOMESTIC TRADE

Tank Vessels Carrying Oil in Domestic Trade

● **Purpose. The purpose of these amendments to the pollution regulations is to add regulations that govern the design and operation of seagoing U.S. tank ships and barges of 150 gross tons and over that carry oil in the United States domestic trade. These regulations will effect in the immediate future a significant reduction of operational pollution from tank cleaning and deballasting operations from seagoing U.S. tank vessels in domestic trade. Additionally, these regulations will be extended to encompass the remainder of the U.S. seagoing vessels and foreign vessels trading into U.S. waters. Pollution caused by vessel casualties will be diminished as a consequence of the regulations.** ●

In the January 26, 1973 issue of the FEDERAL REGISTER (38 FR 2467), the Coast Guard published an advance notice of proposed rulemaking inviting comments from the public on proposed requirements for certain tank vessels to have segregated ballast that would be achieved in part by the fitting throughout the cargo length of double bottoms. In the July 5, 1973 issue of the FEDERAL REGISTER (38 FR 17848), a notice was published informing the public that the Coast Guard intended to withhold action on the Advance Notice of Proposed Rulemaking until the International Conference on Marine Pollution, 1973 was concluded and the results of that meeting evaluated.

After the Conference in October 1973, there followed a period of study and debate within the Coast Guard and with other federal agencies concerned with marine pollution prevention. Several policy questions had to be resolved:

(1) Should the United States accept the international standards specified in the International Convention for the Prevention of Pollution from Ships, 1973, or should unilateral action be taken to impose higher construction standards on U.S. vessels and foreign vessels entering our waters?

(2) If the United States were to accept the Convention standards which would apply to foreign ships and U.S. ships in foreign trade, what standards should be adopted for U.S. vessels in domestic trade?

(3) Should economic, social, legal, foreign policy, and safety considerations be reflected in the formulation of the regulations?

After considering the issues raised by these questions, the Coast Guard decided that the Convention although not perfect, did establish a reasonable and environmentally effective set of standards on which regulations for tank vessel construction could be based. The Coast Guard also decided that pollution regulations for all U.S. seagoing tank ships should be uniform, irrespective of the trade in which they are engaged. Based on these two decisions, proposed regulations conforming to the provisions of the Convention were published in the June 28, 1974 issue of the FEDERAL REGISTER (39 FR 24150).

In developing the proposed regulations, the Coast Guard also complied with the mandate contained in Title II of the Ports and Waterways Safety Act of 1972 (46 U.S.C. 391a) to consider: the need for such regulations; the extent to which such regulations will contribute to safety and/or protection of the marine environment; and the practicability of compliance with the regulations, including cost and technical feasibility.

In response to public and Congressional comment, the Coast Guard has reviewed the basis for the proposal and reaffirms its decision to base the regulations on the 1973 International Convention. Pollution of the oceans must be viewed as an international problem. Ocean winds and currents do not observe national boundaries. Many of the ocean areas of greatest productivity of sea life lie in international waters beyond the jurisdiction of any nation. World shipping and trade in petroleum are international in scope, with only a small portion of the U.S. supply of petroleum being transported in ships of American registry. Therefore, ship source pollution problems are best attacked in an international context with unilateral action reserved for those circumstances when international solutions are impossible or inappropriate.

Because of its potential effectiveness in reducing operational pollution, the best course of action is the implementation of the Convention coupled with vigorous efforts by the Coast Guard to improve crew training, manning standards, and operating standards for the reduction of both operational and accidental outflows.

A number of commenters asked why the Coast Guard did not distinguish between foreign and domestic trade and provide higher standards for U.S. vessels engaged in domestic trade. Some commenters interpreted Title II of the Ports and Waterways Safety Act of 1972 (46 U.S.C. 391a), as amended by Section 401 of the Trans-Alaska Pipeline Authorization Act (Public Law 93.153, 87 Stat. 576), as establishing that distinction. In the Coast Guard's opinion, the law does not permit a distinction between domestic and foreign vessels to be inferred from any treaty, convention, or international agreement. In addition, there is no safety or environmental basis for setting higher standards for U.S. domestic trade vessels since the characteristics of the operational situation external to the vessel determine the threat to the environment and to the safety of the vessel, not whether the vessel is engaged in foreign or domestic trade. Accordingly, there is no mandate to issue, for U.S. tank vessels engaged in carrying oil in domestic trade, rules which set a higher standard than those rules that will apply to other U.S. vessels and to foreign vessels while in United States jurisdiction.

Existing regulations governing tanker construction and operation, issued under R.S. 4417a, as amended (46 U.S.C. 391a) and promulgated in 46 CFR Subchapters D and O, make no distinction between tank vessels engaged in domestic trade and those engaged in foreign trade. Requirements for seagoing tank vessels have been based on the vessel size, the duration of the voyage, the exposure to hazards (i.e., bad weather, rough sea conditions, vessel traffic), and the characteristics of the cargo carried. If distinctions in tanker construction requirements concerned with safety and pollution prevention were to be based on "foreign" and "domestic" trade routes, the result would be different standards for vessels engaged in essentially identical voyage routes. For example, a vessel on a "foreign" voyage from a Caribbean port, another on a "domestic' voyage from the Gulf coast, both sailing along the east coast of the United States, are subject to identical risks. The Coast Guard has concluded that safety requirements should be concerned with the risks involved and not on trade route distinctions.

Another reason for not distinguishing between tankers in foreign and domestic trade is the need to allow owners the flexibility to use vessels in either trade as business opportunities change. Several commenters doubted the validity of this reason. Therefore, the Coast Guard examined the voyage records of 272 U.S. seagoing tank vessels; only 66 vessels had engaged exclusively in domestic trade during the sample time period. Those 66 were generally vessels of less than 15,000 gross tons, and at least 15 were carrying bulk cargoes other than petroleum, such as sulphur, wine, and similar dry and liquid cargoes.

Since the amendments are based on the Convention, several commenters suggested that the Convention wording be used. While adequate for the purposes of international agreement for implementation by states parties, the language of the Convention is not in all cases considered by the Coast Guard as being specific enough for legal sufficiency.

There were several comments concerning the dates in the definition of "new vessel" each of which proposed a delay in the applicability of the requirements. The Coast Guard found no support for further delay and accordingly did not adopt the suggested changes.

Several commenters suggested that the Coast Guard should establish cutoff dates after which existing vessels not fully in compliance with the proposed requirements for new vessels would be removed from service in U.S. waters. Existing vessels are required to be upgraded by the use of slop tanks, separators, oil discharge monitoring and control systems, and the alteration of piping. These are design and equipment requirements that will improve the ability of the vessel to

avoid routine operational discharges. It is not practicable to retroactively apply the segregated ballast requirements of these regulations to existing vessels. The Coast Guard is participating in a study of the cost and feasibility of some type of retrofitted segregated ballast requirement. This study is being conducted by a working group of the National Committee for the Prevention of Marine Pollution.

The proposed revision to the oil record book requirement in § 151.35(c)(1)(v) has been changed to state that it is applicable only to the side valves, that is, the valves on the cargo transfer manifold where the oil is transferred to or from the shore during loading or discharge. The remainder of the valves in the oil and ballast system are covered by the other entries in the oil record book.

Several commenters suggested that the definition of clean ballast in proposed § 157.03(e) is not clear and differs from the Convention meaning. The proposed definition agrees with current U.S. regulations (see 40 CFR Part 110) and has not been changed. Discussions between the Coast Guard and the Environmental Protection Agency are being held on the question of whether confirmation by monitor records that a discharge did not exceed 15 parts per million oil in water provides a legal defense. Changes in the regulations may be proposed after these discussions.

One commenter noted that the proposed definition of deadweight in § 157.03(g) was at variance with the Convention and this definition has been changed to conform with the Convention.

Several commenters suggested that petrochemicals should be excluded from the proposed definition of "oil." Petrochemicals have not been classified with respect to pollution potential. When 46 CFR Subchapter O is revised to incorporate the provisions of Annex II of the Convention, the classification problem will be addressed in more detail. As suggested, petrochemicals are now excluded from the definition of oil. The definition has been reworded for clarification.

One commenter suggested that the definition of segregated ballast in proposed § 157.03(r) should include the Convention alternative of ballast cargoes other than oil or noxious substances. This suggestion has not been adopted since no substances have been identified or suggested for regular use as an alternative to water ballast.

One commenter questioned whether proposed § 157.05(a) represented a step toward adoption of the metric system. The formulas in these regulations require conversion from customary units to SI units before entering values into the formulas. This use of the metric system will increase in the coming years.

One commenter suggested that the Commandant of the Coast Guard should reserve the option of accepting an operating requirement in lieu of a construction requirement under proposed § 157.07. The adoption of that suggestion would conflict with a Convention provision expressly intended to preclude such a practice. The Coast Guard agrees with the Convention philosophy and will not adopt the suggestion.

Commenters noted that some requirements of proposed Subpart B are inappropriate for most seagoing tank barges. Generally, unmanned seagoing tank barges do not take ballast into cargo tanks or clean cargo tanks while at sea. Accordingly, § 157.08 has been rewritten and § 157.28 has been added to reflect this operating practice. Also, § 157.08 has been changed to exempt barges constructed to inland standards from the requirements in §§ 157.19 and 157.21.

Many commenters were critical of the fact that the segregated ballast requirement in proposed § 157.09 did not include vessels smaller than 70,000 tonnage DWT. The United States negotiating position at the Conference was in favor of extending the segregated ballast requirements to all new vessels of 20,000 tonnage DWT or more, but this position was not accepted by the majority at the Conference. Discussion at the Conference for and against extending segregated ballast requirements to cover vessels from 20,000 tonnage DWT to 70,000 tonnage DWT centered on the effectiveness of such requirements in reducing operational pollution. Segregated ballast would not be effective in preventing operational pollution from tank vessels smaller than 70,000 tonnage DWT because most of these vessels carry petroleum products rather than crude oil. These vessels must frequently wash tanks for cargo purity reasons. Since clean cargo tanks are then available for ballasting, segregated ballast is unnecessary.

Proposed § 157.09(b) (redesignated § 157.09(a)) concerning segregated ballast tank capacity has been revised in response to criticism that the proposal created an unreasonable burden on the shipbuilder and shipowner to show the adequacy of segregated ballast capacity for ballast voyages. The master must have a vessel with adequate segregated ballast capacity for safe operation. The amount of ballast needed for safe operation is a matter that in the past has been usually left to the judgment of the vessel's master. Considerable effort on the part of naval architects, shipowners, and government agencies has gone into trying to determine a reasonable ballast level for most circumstances. The draft and trim requirements in the Convention, contained in proposed § 157.09(c) (redesignated § 157.09(b)), are based on the current collective judgment of world experts. The validity of these levels will have to be verified by satisfactory operating experience in the future. The responsibility for determining how much ballast is needed for safe operations remains with the vessel's master. He may take additional ballast in cargo tanks during severe weather if in his judgment it is necessary (see § 157.35).

Comments indicated that the proposal was not clear as to whether the draft and trim requirements are design criteria or operating restrictions. Section 157.09(b) has been changed to require the designed-in segregated ballast capacity to be sufficient for the ship to meet the draft and trim requirements in any ballast condition including the condition "lightweight with only segregated ballast." Section 157.09(d) (redesignated § 157.09(c)) has been changed to allow additional ballast to be carried in more than one cargo tank under abnormally severe weather conditions, as described in § 157.35.

Many commenters were critical of the fact that the proposed regulations did not require double bottoms. In addition, the proposal did not contain standards concerned with the specific placement of segregated ballast within the vessel. The commenters suggested that if segregated ballast was needed to control operational pollution, it should be distributed to serve as protective space to mitigate the outflow in cases of collisions, rammings, and groundings. Though the Convention does not specify how segregated ballast spaces should be distributed, the suggestion that the spaces can have a secondary use by proper arrangement to give some protection in the case of accidents has merit.

A new paragraph (d) has been added to § 157.09 to state the requirement that was unstated but implicit in proposal: distribution of the segregated ballast must be acceptable to the Coast Guard.

On page 48289 in this issue of the FEDERAL REGISTER the Coast Guard publishes a notice of proposed rulemaking amending these rules. These proposed changes relate specifically to the limited issue of how the required segregated ballast must be distributed.

Proposed § 157.11 has been reworded for clarification. Paragraph (c) has been changed to state that a manifold includes a cargo or ballast manifold that can be used to transfer dirty ballast water or an oily mixture to a reception facility.

One comment with respect to proposed § 157.13 suggested that the requirement was impractical because in many cases a cantilevered structure extending beyond the deck edge would be necessary to visually observe the discharge. This same commenter suggested that it would be sufficient to observe the effluent in the sea. The Coast Guard rejects this concept on the basis that it is not satisfactory or sufficient to observe the wake. The overboard discharges must be so located to be observed from the deck.

In response to several comments, proposed § 157.15 has been rewritten. References to baffles, weirs, and similar separation aids within the slop tank have been eliminated. The requirement for separate inlet and outlet connections has been retained since this is a basic prerequisite for decanting water from the slop tank. Slop tank design that provides effective and efficient oil/water separation is a developing art so it is not possible to provide specific design requirements at this time.

One commenter pointed out that Regulation 15(2)(a) in the Convention provides that on existing vessels any cargo tank may be designated a slop tank if suitable piping is installed. Nothing in the proposal is in conflict with Regula-

tion 15(2)(a) concerning this use of cargo tanks. The Coast Guard anticipates that existing vessels will be modified to use existing cargo tanks as slop tanks; however, proposed § 157.15 has been changed to make it clear that slop tanks may carry cargo as is customary in the Load-On-Top (LOT) methods.

Several commenters suggested that "adequate capacity" for the oily residue tank required in proposed § 157.17(b) should be more definitively stated. The Coast Guard feels that the owner and shipbuilder are in the best position to determine the capacity needed for oily residue in view of the variables involved.

One commenter suggested that the dates in proposed § 157.19 concerning cargo tank arrangement and size should be made to correspond with dates defining a new vessel in § 157.03. This is not possible in view of the fact that the dates in this section are established in 33 U.S.C. 1004a, which is based on IMCO recommendations.

In response to several comments, the Coast Guard added an interpretation of paragraph 3.3 of Annex C of the 1971 amendments to the 1954 Convention to the pollution regulations in 33 CFR 151.50 (39 FR 30125). This interpretative rule allows a U.S. tank barge of 150 meters or less to be constructed with essentially the same bulkhead spacing as a tankship of comparable cargo capacity.

One commenter questioned whether sluice gates used in cargo transfer systems are considered "valves" under proposed § 157.19(c). While sluice gates are usually larger and not as tight as gate, globe, or butterfly valves used in cargo systems, the Coast Guard considers them to be "valves" under § 157.19(c).

In response to several comments, proposed § 157.19(d) has been rewritten to require that if a line of piping that runs through a cargo tank in a position less than t_v from the vessel's side or less than v_v from the vessel's bottom, as defined in Appendix A, has a branch, that branch must have a valve within each cargo tank into which the branch opens. The valve may be at the bulkhead where the branch line enters the tanks, at the end of the branch adjacent to the opening, or anywhere in the branch within the tank.

Proposed § 157.21(a)(3) (redesignated § 157.21(c)) has been rewritten to state the criteria that must be satisfied in determining acceptable stability after damage.

Proposed § 157.21(a)(4) has been omitted from the final regulations. The proposal was included to account for cross-flooding; however, cross-flooding was not included in the Convention regulations.

One commenter suggested that proposed § 157.21(b) (redesignated § 157.24(b)) be rewritten on his assumption that it would be impossible for a designer or builder to submit stability data at the same time the contract plans and specifications are submitted. The Coast Guard considers plan review a continuous process. It is normal practice for a designer to prepare preliminary estimates of a vessel's stability as part of the contract plans and specifications. From the time the Coast Guard review process begins and until the time the vessel is certificated, the calculations can be revised and refined by the submitter.

Several commenters felt that the cargo and ballast system information required by proposed § 157.23 is redundant, citing requirements for oil transfer procedures presently contained in 33 CFR 155.750. While there may be some overlap, § 155.750 specifically concerns oil transfer operations at a terminal, but § 157.23 requires information necessary to carry out retention-on-board operations while underway. It may be desirable for some vessels to combine the information required by these rules into one manual.

The proposed requirement in § 157.23 that the instruction manual be submitted for Coast Guard approval has been omitted. The owner must furnish the vessel a manual containing his vessel's cargo and ballast information, and furnishing the vessel with a copy of the "Clean Seas Guide for Oil Tankers" would not meet this requirement. The information required must be available on board the vessel and for Coast Guard examination during boardings.

Several commenters took exception to the prohibition against carrying ballast water in fuel tanks on new vessels contained in proposed § 157.33. The Coast Guard believes that this objection is based upon a misunderstanding of the background of Regulation 14(2) of Annex I of the Convention. It was the intent of the Convention to prohibit ballasting of fuel tanks on new vessels. The abnormal circumstances in Regulation 14(2) refer to a small number of vessels that stay at sea for long periods, such as fishing, whale, factory, or other vessels deployed to remote areas such as the Arctic or Antarctic. Since the proposal did not concern those vessels, the prohibition was not changed.

A question on ballasting of fuel tanks concerned the use of a dual purpose ballast/fuel tank (i.e., a tank used for fuel when the vessel is on a trade route requiring long voyages and used for ballast when the vessel is on a short voyage route). If a vessel has a dual purpose tank, a requirement will be noted during the Coast Guard plan review process that the piping to the particular dual purpose tank must contain spool pieces that can be inserted into either the fuel piping or the ballast piping depending on how the tank is being used.

One comment requested clarification of the phrase "is proceeding enroute" in proposed § 157.37(a)(2). The words in this phrase are used in their dictionary meaning which is "moving on or along the way." In other words, the vessel must be moving through the water. It cannot be anchored or drifting. This will not prohibit a vessel from going to sea solely for the purpose of cleaning tanks before entering a repair yard so long as the criteria in § 157.37 are met.

One commenter noted that proposed § 157.37(a)(5) (redesignated § 157.37(a)(6)) was incomplete since it did not specify how to operate in case of failure of the automatic oil discharge and monitoring and control system. This paragraph has been rewritten to include requirements in case of failure that allows manual operation of the system. Another commenter suggested that proposed § 157.37(b) should have a broader application than only vessels that carry asphalt. This suggestion is not adopted. The only reason an exception exists for asphalt vessels is because of the inability to clean and consolidate the cargo residues while at sea.

Several commenters noted the impracticability of compliance with proposed § 157.43 in the case of a vessel fitted with double bottoms having no access from the deck. This section has been rewritten to allow the discharge without first visually examining the top of the contents of the tank if the ballast content is tested with an oil/water interface detector or a similar device.

Proposed § 157.45 has been changed to acknowledge that the need for either cargo or ballast transfer may arise while the vessel is at sea necessitating the opening of valves and closing devices. The phrases "closing devices" and "transfer system" are used to include those vessels using sluice gates in tank bulkheads. Valves and closing devices are required to be closed at sea, except when in use, in order that the vessel meets the stability requirement.

Proposed § 157.49 has been changed to reflect its applicability to persons operating cargo and ballast systems of a tank vessel.

Several commenters noted an omission in Appendix A for the installation of emergency high suction transfer systems. This was an oversight and this optional installation has now been added to Appendix A.

One commenter noted that proposed footnote 2 of paragraph 4(b) in Appendix B appeared to be more stringent than the Convention requirements since it specifies the use of the actual density of the cargo in order to perform the calculations. This was included to ensure that the designers used a representative cargo density in the calculations to rectify the omission of a Convention specification. Proposed paragraph 4(d) of Appendix B has been rewritten to reflect the latest Convention recommendation on free surface effect calculations.

In consideration of the foregoing, the proposed regulations that appear in the June 28, 1974 issue of the FEDERAL REGISTER (39 FR 24150) are hereby adopted subject to the changes discussed in the preceding paragraphs. It was Congressional intent that the regulations be effective not later than June 30, 1974 and any further delay would be contrary to public interest. Accordingly, it is found necessary to make the regulations effective on October 14, 1975.

A Final Environmental Impact Statement, "Regulations for Tank Vessels Engaged in the Carriage of Oil in Domestic Trade", has been prepared on the regulations in this document, and was made available to the President's Council on Environmental Quality and the public on August 15, 1975. The statement contains additional and more detailed informa-

tion. Copies are available upon request to the Executive Secretary (G-CMC/82), U.S. Coast Guard, Washington, DC 20590.

The inflationary impact of the requirements in this document was evaluated in accordance with the criteria contained in the Department's Interim Guidance for the Preparation of Inflation Impact Statements. Under the evaluation, these requirements are found not to be a major proposal and a Negative Declaration has been prepared. Copies are available upon request to the Executive Secretary (G-CMC/82), U.S. Coast Guard, Washington, D.C. 20590.

I certify that the Interim Rules and Regulations for the Protection of the Marine Environment Relating to Tank Vessels Carrying Oil in Domestic Trade is not a major proposal in accordance with Executive Order 11821, dated November 27, 1974, and Departmental implementing instructions.

In consideration of the foregoing, chapter 1 of title 33, Code of Federal Regulations, is amended as follows:

1. Section 151.35 (c) and (d) (2) is revised to read as follows:

§ 151.35 Oil record book.

* * * * *

(c) If an operations listed in this paragraph occurs, the Oil Record Book must be completed in accordance with the requirements contained in paragraph (e) of this section.

(1) The following operation on a tanker must be recorded on a tank-to-tank basis:

(i) Loading of oil cargo.

(ii) Internal transfer of oil cargo during a voyage.

(iii) Opening or closing before and after loading and unloading operations of valves or similar devices that interconnect cargo tanks.

(iv) Opening or closing of means of communication between cargo piping and seawater ballast piping.

(v) Opening or closing of valves at hose connection points at ends of cargo transfer manifolds before, during, and after loading and unloading operations.

(vi) Unloading of oil cargo.

(vii) Ballasting of cargo tanks.

(viii) Cleaning of cargo tanks.

(ix) Discharge of ballast except from segregated ballast tanks.

(x) Discharge of water from slop tanks.

(xi) Disposal of residues.

(xii) Discharge overboard in port or at sea of bilge water accumulated in machinery spaces.

(2) The following operations on a ship other than a tanker must be recorded on a tank-to-tank basis:

(i) Ballasting, or cleaning during voyage, of bunker fuel tanks.

(ii) Disposal of oily residues from bunker fuel tanks or other sources.

(d) * * *

(2) The escape of oil or an oily mixture resulting from—

(i) damage to the ship;

(ii) unavoidable leakage; or

(iii) any accident or other exceptional circumstance.

* * * * *

2. Subchapter O is amended by adding Part 157 to read as follows:

Subpart A—General

Sec.

157.01 Purpose.
157.03 Definitions.
157.05 Performing calculations for this part.
157.07 Equivalents.

Subpart B—Design and Equipment

157.08 Applicability.
157.09 Segregated ballast.
157.11 Pumping, piping, and discharge arrangements.
157.13 Designated observation area.
157.15 Slop tanks in tank vessels.
157.17 Oily residue tank.
157.19 Cargo tank arrangement and size.
157.21 Subdivision and stability.
157.22 Reserved.
157.23 Cargo and ballast system information.
157.24 Submission of calculations, plans, and specifications.

Subpart C—Vessel Operation

157.25 Applicability.
157.27 Discharges: tank vessels carrying oil exclusively on rivers, lakes, bays, sounds, and the Great Lakes, and seagoing tank vessels of less than 150 gross tons.
157.28 Discharges from tank barges exempted from certain design requirements.
157.29 Discharges: seagoing tank vessels of 150 gross tons or more.
157.31 Discharges: chemical additives.
157.33 Water ballast in oil fuel tanks.
157.35 Ballast added to cargo tanks.
157.37 Discharge of cargo residue.
157.39 Machinery space bilges.
157.41 Emergencies.
157.43 Discharge in port or at an offshore terminal.
157.45 Valves in cargo or ballast piping system.
157.47 Information for master.
157.49 Instruction manual.
Appendix A Damage assumptions, hypothetical outflows, and cargo tank size and arrangements.
Appendix B Subdivision and Stability Assumptions.

AUTHORITY: R.S. 4417a(3) and (7), as amended (46 U.S.C. 391a(3) and (7)); 49 CFR 1.46(n)(4).

Subpart A—General

§ 157.01 Purpose.

The purpose of the regulations in this part is to prescribe design, equipment and operation requirements for seagoing United States tank vessels engaged in the carriage of oil in domestic trade that are in addition to those requirements in 46 CFR Subchapters D and O.

§ 157.03 Definitions.

As used in this part:

(a) "Length" or "L" means the distance in meters from the fore side of the stem to the axis of the rudder stock on a waterline at 85 percent of the least molded depth measured from the molded baseline, or 96 percent of the total length on that waterline, whichever is greater. In vessels designed with drag, the water line is measured parallel to the designed waterline.

(b) "Amidships" means the middle of the length.

(c) "Breadth" or "B" means the maximum molded breadth of a vessel in meters.

(d) "Center tank" means any tank inboard of a longitudinal bulkhead.

(e) "Clean ballast" means the ballast in a cargo tank which, if discharged from a vessel that is stationary into clean, calm water on a clear day, would not—

(1) produce visible traces of oil on the surface of the water or on adjoining shore lines; or

(2) cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shore lines.

(f) "Combination carrier" means a vessel designed to carry oil or solid cargoes in bulk.

(g) "Deadweight" or "DWT" means the difference in metric tons between the lightweight displacement and the total displacement of a vessel measured in water of specific gravity 1.025 at the load waterline corresponding to the assigned summer freeboard.

(h) "Lightweight" means the displacement of a vessel in metric tons without cargo, oil fuel, lubricating oil, ballast water, fresh water, and feedwater in tanks, consumable stores, and any persons and their effects.

(i) "New Vessel" means a vessel that—

(1) is constructed under a contract awarded after December 31, 1974;

(2) in the absence of a building contract, has the keel laid or is at a similar stage of construction after June 30, 1975;

(3) is delivered after December 31, 1977; or

(4) has undergone a major conversion for which—

(i) the contract is awarded after December 31, 1974;

(ii) in the absence of a contract, conversion is begun after June 30, 1975; or

(iii) conversion is completed after December 31, 1977.

(j) "Existing vessel" means any vessel that is not a new vessel.

(k) "Major conversion" means a conversion of an existing vessel that—

(1) substantially alters the dimensions or carrying capacity of the vessel;

(2) changes the type of the vessel; or

(3) substantially prolongs the vessel's service life.

(l) "From the nearest land" means from the baseline from which the territorial sea of the United States is established in accordance with international law.

(m) "Instantaneous rate of discharge of oil content" means the rate of discharge of oil in liters per hour at any instant, divided by the speed of the vessel in knots at the same instant.

(n) "Oil" means oil of any kind or in any form, except petrochemicals, and includes but is not limited to petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil.

(o) "Oil fuel" means any oil used as fuel for machinery in the vessel in which it is carried.

(p) "Oily mixture" means a mixture with any oil content.

(q) "Permeability of a space" means the ratio of the volume within a space

that is assumed to be occupied by water to the total volume of that space.

(r) "Segregated ballast" means the ballast water introduced into a tank that is completely separated from the cargo oil and oil fuel system and that is permanently allocated to the carriage of ballast.

(s) "Slop tank" means a tank specifically designated for the collection of cargo drainings, washings, and other oil mixtures.

(t) "Tank" means an enclosed space that is formed by the permanent structure of a vessel, and designed for the carriage of liquid in bulk.

(u) "Tank barge" means a tank vessel not equipped with a means of self-propulsion.

(v) "Tank vessel" means a vessel that is specially constructed or converted to carry liquid bulk cargo in tanks and includes tankers, tankships, tank barges, and combination carriers when carrying oil cargoes in bulk.

(w) "U.S. vessel" means a vessel that is owned, documented, or registered in the United States and is not a public vessel.

(x) "Wing tank" means a tank that is located adjacent to the side shell plating.

(y) "Tankship" means a tank vessel propelled by mechanical power or sail.

(z) "Domestic trade" means trade between ports or places within the United States, its territories and possessions, either directly or via a foreign port including trade on the navigable rivers, lakes, and inland waters.

§ 157.05 Performing calculations for this part.

In this part, unless the context requires otherwise—

(a) formulas are in the International System of Units (SI);

(b) values used in those formulas must be in the International System of Units; and

(c) forward and after perpendiculars are located at the forward end and at the after end of the length. The forward perpendicular coincides with the foreside of the stem on the waterline on which the length of the vessel is measured.

§ 157.07 Equivalents.

The Coast Guard may accept an equivalent, in accordance with the procedure in 46 CFR 30.15–1, of a design or an equipment to fulfill a requirement in this part except an operational method may not be substituted for a design or equipment requirement.

Subpart B—Design and Equipment

§ 157.08 Applicability.

(a) The requirements in this subpart apply to seagoing tank vessels of 150 gross tons or more except as follows:

(1) The requirements in §§ 157.11, 157.13, and 157.15 do not apply to a tank vessel that carries asphalt exclusively.

(2) The requirements in §§ 157.11, 157.13, 157.15, and 157.23 do not apply to a tank barge that can not ballast cargo tanks or wash cargo tanks while proceeding en route.

(3) The requirements in §§ 157.19 and 157.21 do not apply to a tank barge whose certificate is endorsed by the Coast Guard for a limited short protected coastwise route if the barge is constructed and certificated primarily for service on an inland route.

(b) The requirements in § 157.21 also apply to tank vessels engaged in the carriage of oil on the navigable waters of the Great Lakes.

§ 157.09 Segregated ballast.

(a) A new vessel of 70,000 tons DWT or more must have segregated ballast tanks that have a total capacity to allow the vessel to meet the draft and trim requirements in paragraph (b) of this section without recourse to the use of oil tanks for water ballast.

(b) In any ballast condition during any part of a voltage, including that of lightweight with only segregated ballast, the vessel's drafts and trim must have the capability of meeting each of the following requirements:

(1) The molded draft amidship (dm) in meters without taking into account vessel deformation must not be less than dm in the following mathematical relationship:

$$dm = 2.0 + 0.02L$$

(2) The drafts at the forward and after perpendiculars must correspond to those determined by the draft amidship as specified in paragraph (b)(1) of this section, in association with the trim by the stern of no more than 0.015L.

(3) The minimum allowable draft at the after perpendicular is that which is necessary to obtain full immersion of the propeller.

(c) The vessel may be designed to carry ballast water in cargo tanks during the condition described in § 157.35.

(d) The distribution of the segregated ballast spaces within the cargo tank area must be acceptable to the Coast Guard.

§ 157.11 Pumping, piping, and discharge arrangements.

(a) Each tank vessel must have a fixed piping system arranged for the—

(1) transfer of dirty ballast residue and tank washings from each cargo tank to a slop tank;

(2) discharge to the sea under § 157.37; and

(3) discharge in a port or at an offshore terminal under § 157.43.

(b) Each tank vessel must have the fixed piping system arranged to, for discharges under paragraph (a)(2) of this section, terminate above the weather deck or on the vessel's side above the waterline of the deepest ballast condition.

(c) Each tank vessel must have a cargo or ballast discharge manifold that—

(1) is located on the weather deck;

(2) terminates on each side of the vessel; and

(3) is connected to the piping system required in paragraph (a)(1) of this section for the transfer to a reception facility of oily mixtures that cannot be discharged under §§ 157.37 or 157.43.

NOTE: An existing vessel must comply with the requirements in § 157.11 before December 31, 1977.

§ 157.13 Designated observation area.

A new vessel must have a designated observation area on the weather deck or above that is—

(a) located so that the effluent from the pipeline terminations required in § 157.11(a) and the manifold required in § 157.11(c) may be visually observed; and

(b) equipped with—

(1) a means to directly stop the discharge of effluent into the sea; or

(2) a positive communication system, such as a telephone or a radio, between the observation area and the discharge control position.

§ 157.15 Slop tanks in tank vessels.

(a) *Number.* A tank vessel must have the following number of slop tanks that comply with the requirements of this section:

(1) A new vessel of less than 70,000 tons DWT and an existing vessel must have at least one slop tank.

(2) A new vessel of 70,000 tons DWT or more must have at least two slop tanks.

(b) *Capacity.* Slop tanks required in this section must have a capacity to retain two percent or more of the oil carrying capacity of the vessel except nonsegregated ballast tank vessels that have tank eductors installed must have a slop tank capacity of three percent or more of the oil carrying capacity of the vessel.

(c) *Design.* A slop tank required in this section—

(1) must minimize turbulence, entrainment of oil, and the creation of an emulsion by the use of separate inlet and outlet connections; and

(2) may carry bulk oil when not being used as a slop tank.

NOTE: An existing vessel must comply with the requirements in § 157.15 before December 31, 1977.

§ 157.17 Oily residue tank.

(a) A tank vessel of 400 gross tons or more must have a tank that receives and holds oily residue resulting from purification of fuel and lubricating oil and from oil leakages in machinery spaces.

(b) Each oily residue tank required in paragraph (a) of this section must have an adequate capacity that is determined by the—

(1) type of machinery installed on the vessel; and

(2) maximum fuel oil capacity.

(c) Each oily residue tank on a new vessel must be designed to facilitate—

(1) cleaning; and

(2) discharging to a reception facility.

NOTE: An existing vessel must comply with the requirements in § 157.17 (a) and (b) before December 31, 1977.

§ 157.19 Cargo tank arrangement and size.

(a) The requirements in this section apply to—

(1) a new vessel;

(2) a tank vessel delivered after January 1, 1977; and

(3) a tank vessel that is delivered before January 1, 1977, for which the building contract is awarded after January 1, 1972, or, if there is no building contract, the keel is laid or the vessel is at a similar stage of construction after June 30, 1972.

(b) As determined in accordance with the procedures contained in Appendix A of this part, each cargo tank must be of such size and arrangement that—

(1) the hypothetical outflow for side damage (O_c) or for bottom damage (O_s) anywhere within the length of the vessel must not exceed O_A (30,000 cubic meters or 400 $\sqrt[3]{\text{DWT}}$, whichever is greater, limited to a maximum of 40,000 cubic meters);

(2) the volume of each wing tank and center tank is less than the allowable volume of a wing tank (VOL_W) and the allowable volume of a center tank (VOL_C) respectively; and

(3) the length of a tank is less than the allowable length of a tank (l_a).

(c) If a cargo transfer system interconnects two or more cargo tanks, the system must have valves to segregate the tanks from each other.

(d) If a line of piping that runs through a cargo tank in a position less than t_c from the vessel's side or less than v_s from the vessel's bottom, as defined in Appendix A of this part, has a branch, that branch must have a valve within each cargo tank into which the branch opens.

(e) If piping that serves suction wells is installed within a double bottom, that piping must be—

(1) fitted with valves located at the point of connection to the tank served to prevent oil outflow in the event of damage to the piping; and

(2) designed to be installed as high from the bottom shell as possible.

NOTE: Vessels within the categories in § 157.19(a)(3) must meet the requirements in § 157.19 before December 31, 1976. If a vessel is constructed under a contract that was awarded before January 1, 1974 and does not carry crude oil, fuel oil, heavy diesel oil, or lubricating oil; the requirements in § 157.19 do not apply.

CROSS REFERENCE: See 33 CFR 151.50 (39 FR 30125) for an interpretative rule concerning tank arrangement and size limitations applicable to seagoing tank barges.

§ 157.21 Subdivision and stability.

A new vessel must meet the following subdivision and damage stability criteria after assuming side and bottom damage as defined in Appendix B of this part. A vessel that meets the requirements in this section is considered by the Coast Guard as meeting 46 CFR 42.20–5.

(a) The final waterline, taking into account sinkage, heel, and trim, must be below the lower edge of an opening through which progressive flooding may take place, such as an air pipe, or any opening that is closed by means of a weathertight door or hatch cover. This opening does not include an opening closed by a—

(1) watertight manhole cover;

(2) flush scuttle;

(3) small watertight cargo tank hatch cover that maintains the high integrity of the deck;

(4) remotely operated watertight sliding door; or

(5) side scuttle of the non-opening type.

(b) In the final stage of flooding, the angle of heel due to unsymmetrical flooding must not exceed 25 degrees, except that this angle may be increased to 30 degrees if no deck edge immersion occurs.

(c) For acceptable stability in the final stage of flooding, the righting lever curve must have a range of at least 20 degrees beyond the position of equilibrium in association with a maximum residual righting lever of at least 0.1 meter. For the calculations required in this section, weathertight openings or openings fitted with automatic closures, (*e.g.* a vent fitted with a ball check valve), need not be considered as points of downflooding within the range of residual stability, but other openings must be accounted for in the calculation.

§ 157.22 [Reserved]

§ 157.23 Cargo and ballast system information.

(a) Each tank vessel to which this part applies must have an instruction manual that describes the automatic and manual operation of the cargo and ballast system in the vessel.

(b) The format and information contained in the instruction manual required in paragraph (a) of this section must be similar to the manual entitled "Clean Seas Guide for Oil Tankers" which can be obtained from the International Chamber of Shipping, 30–32 St. Mary Axe, London, England, EC3A 8ET.

§ 157.24 Submission of calculations, plans, and specifications.

The owner, builder, or designer of a new vessel shall submit the following to the Coast Guard before construction of the vessel:

(a) Calculations to substantiate compliance with the tank arrangement and size requirements in § 157.19(b).

(b) Calculations to substantiate compliance with subdivision and damage stability requirements in § 157.21.

(c) [Reserved]

(d) Plans and specifications required in 46 CFR 31.10–5 that include—

(1) the design characteristics of the vessel, the arrangements, configuration, and contents of the assumed damaged compartments; and

(2) the distributions, specific gravities, and the free surface effect of liquids.

Subpart C—Vessel Operation

§ 157.25 Applicability.

This subpart prescribes regulations for the discharging of clean ballast, segregated ballast, and oil mixtures from, and for the carriage of ballast water by—

(a) tank vessels carrying oil exclusively on rivers, lakes, bays, sounds, and the Great Lakes; and

(b) seagoing tank vessels.

§ 157.27 Discharges: Tank vessels carrying oil exclusively on rivers, lakes, bays, sounds, and the Great Lakes, and seagoing tank vessels of less than 150 gross tons.

Unless a tank vessel carrying oil exclusively on rivers, lakes, bays, sounds, and the Great Lakes, or a seagoing tank vessel of less than 150 gross tons discharges clean ballast or segregated ballast, the vessel must—

(a) retain on board any oily mixture; or

(b) transfer an oily mixture to a reception facility.

§ 157.28 Discharges from tank barges exempted from certain design requirements.

The person in charge of a tank barge exempted under § 157.08(a)(2) from the requirements in §§ 157.11, 157.13, 157.15, and 157.23 shall ensure that while the barge is proceeding en route—

(a) cargo tanks are not ballasted or washed; and

(b) oil or oily mixtures are not discharged.

§ 157.29 Discharges: Seagoing tank vessels of 150 gross tons or more.

Unless a seagoing tank vessel of 150 gross tons or more discharges an oily mixture in compliance with the requirements in §§ 157.37, 157.39, or 157.43, the vessel must—

(a) retain the mixture; or

(b) transfer the mixture to a reception facility.

§ 157.31 Discharges: Chemical additives.

No person may use a chemical additive to circumvent the discharge requirements in §§ 157.27, 157.29, 157.37, 157.39, and 157.43.

§ 157.33 Water ballast in oil fuel tanks.

A new vessel may not carry ballast water in an oil fuel tank.

§ 157.35 Ballast added to cargo tanks.

A tank vessel that meets the design requirement in § 157.09 may carry water ballast in cargo tanks during abnormally severe weather conditions if more ballast water than can be carried in segregated ballast tanks is required for the safety of the vessel. This ballast water must be—

(a) processed and discharged in compliance with the requirements in § 157.37; and

(b) recorded in the Oil Record Book under § 151.35(c)(1)(vii) of this chapter.

§ 157.37 Discharge of cargo residue.

(a) Except as required in paragraph (b) of this section, a tank vessel may discharge into the sea an oily mixture from a cargo tank and cargo pump room bilge if the vessel—

(1) is more than 50 nautical miles from the nearest land;

(2) is proceeding en route;

(3) is discharging at an instantaneous rate of oil content not exceeding 60 liters per nautical mile;

(4) is an existing vessel and the total quantity of oil discharged into the sea

does not exceed 1/15,000 of the total quantity of the cargo that the discharge formed a part, or is a new vessel and the total quantity of oil discharged into the sea does not exceed 1/30,000 of the total quantity of the cargo that the discharge formed a part;

(5) discharges above the waterline through the piping required in §157.11 (a); and

(6) has in operation an automatic oil discharge monitoring and control system approved by the Coast Guard (specification regulation to be proposed), except that system may be operated manually if—

(i) the automatic system fails during a ballast voyage;

(ii) the failure is recorded in the Oil Record Book;

(iii) the master ensures that the discharge is constantly monitored visually and promptly terminated when oil is detected in the discharge; and

(iv) the system is operated manually only until the ballast voyage is completed.

(b) A tank vessel that carries asphalt exclusively must transfer cargo residues and tank washings to a reception facility.

§ 157.39 Machinery space bilges.

(a) A tank vessel may discharge an oily mixture from a machinery space bilge that is combined with an oil cargo mixture if the vessel discharges in compliance with § 157.37.

(b) A tank vessel may discharge an oily mixture from a machinery space bilge that is not combined with an oil cargo mixture if the vessel—

(1) is more than 12 nautical miles from the nearest land;

(2) is proceeding en route;

(3) is discharging an effluent with an oil content of less than 100 parts per million; and

(4) has in operation an oil discharge monitoring and control system approved by the Coast Guard (specification regulation to be proposed) and oil water separating equipment approved by the Coast Guard (specification regulation to be proposed).

§ 157.41 Emergencies.

Sections 157.27, 157.29, 157.37, and 157.39 do not apply to a tank vessel that discharges into the sea oil or oily mixtures—

(a) for the purpose of securing the safety of the vessel or for saving life at sea; or

(b) as a result of damage to the vessel or its equipment if—

(1) reasonable precautions are taken after the occurrence of the damage or discovery of the discharge for the purpose of preventing or minimizing the discharge; and

(2) the owner, master or person in charge did not intend to cause damage, or did not act recklessly and with knowledge that damage of the environment would probably result.

§ 157.43 Discharge in port or at an offshore terminal.

The master of a tank vessel shall ensure that—

(a) segregated ballast is not discharged in a port or at an offshore terminal unless he finds no oily mixture in the ballast after—

(1) visually examining the top of the ballast contents of each tank; or

(2) testing the ballast contents of each tank with an oil/water interface detector; and

(b) clean ballast is discharged in accordance with the requirement in § 157.37(a)(6).

§ 157.45 Valves in cargo or ballast piping system.

When a tank vessel is at sea and the tanks contain oil, valves and closing devices in the cargo or ballast piping system or in the transfer system must be kept closed except they may be opened for cargo or ballast transfer to trim the vessel.

§ 157.47 Information for master.

A master or person in charge of a tank vessel shall operate the vessel in accordance with the information required in 46 CFR 31.10-30(d) that includes:

(a) Stability information.

(b) Damage stability information determined in acordance with the criteria contained in Appendix B of this part.

(c) Loading and distribution of cargo information determined in compliance with the damage stability criteria required in Appendix B of this part.

§ 157.49 Instruction manual.

The master of a tank vessel shall ensure that the instruction manual under § 157.23 is available and used when the cargo or ballast systems are operated.

APPENDIX A—DAMAGE ASSUMPTIONS, HYPOTHETICAL OUTFLOWS, AND CARGO TANK SIZE AND ARRANGEMENTS

1. *Source.* The procedures for the damage assumption calculations contained in this Appendix conform to Regulations 22, 23, and 24 of Annex I of the International Convention for the Prevention of the Pollution from Ships, 1973, done at London, November 2, 1973.

2. *Assumptions.* For the purpose of calculating hypothetical outflow from tank vessels, three dimensions of the extent of damage of a parallelepiped on the side and bottom of the vessel are assumed.

(a) For side damage, the conditions are as follows:

Damage	*Conditions*
(1) Longitudinal extent l_s	$\frac{1}{3} L^{2/3}$ or 14.5 m, whichever is less.
(2) Transverse extent (t_s) (inboard from the vessel's side at right angles to the centerline at the level corresponding to the assigned summer freeboard).	$\frac{B}{5}$ or 11.5 m, whichever is less.
(3) Vertical extent (v_s)	From the base line upwards without limit.

(b) For bottom damage, two conditions to be applied individually to the stated portions of the vessel, as follows:

Damage	Conditions	
	For 0.3L from the forward perpendicular of ship	Any other part of ship
(1) Longitudinal extent (l_s)	$\frac{L}{10}$	$\frac{L}{10}$ or 5 meters, whichever is less.
(2) Transverse extent (t_s)	$\frac{B}{6}$ or 10 meters, whichever is less but not less than 5 meters.	5 meters.
(3) Vertical extent from the base line (v_s).	$\frac{B}{15}$ or 6 meters, whichever is less.	$\frac{B}{15}$ or 6 meters, whichever is less.

3. *Hypothetical Outflow of Oil.* (a) The hypothetical outflow of oil in the case of side damage (O_c) and bottom damage (O_s) is calculated by the following formula with respect to compartments breached by damage to all conceivable locations along the length of the vessel to the extent as defined in section 2 of this Appendix.

(1) For side damages: Formula I

$$O_c = \sum W_i + \sum K_i C_i$$

(2) For bottom damage: Formula II

$$O_s = \frac{1}{3} (\sum Z_i W_i + \sum Z_i C_i)$$

Where:

W_i = Volume of a wing tank assumed to be breached by the damage as specified in section 2 of this Appendix; W_i for a segregated ballast tank may be taken equal to zero;

C_i = Volume of a center tank assumed to be breached by the damage as specified in section 2 of this Appendix; C_i for a segregated ballast tank may be taken equal to zero;

$$K_i = l - \frac{b_i}{t_c}$$

when b_i is equal to or greater than t_c, K_i is equal to zero;

$$Z_i = l - \frac{h_i}{v_s}$$

when h_i is equal to or greater than v_s, Z_i is equal to zero;

b_i = Minimum width of wing tank under consideration measured inboard from the vessel's side at right angles to the centerline at the level corresponding to the assigned summer freeboard; and

h_i = Minimum depth of the double bottom under consideration; where no double bottom is fitted, h_i is equal to zero.

(b) If a void space or segregated ballast tank of a length less than l_s is located between wing oil tanks, O_s in formula I of this section may be calculated on the basis of volume W_i being the actual volume of one such tank (where they are of equal capacity) or the smaller of the two tanks (if they differ in capacity), adjacent to such space, multiplied by S_i as defined below and taking for all other wing tanks involved in such a collision the value of the actual full volume.

$$S_i = l - \frac{l_i}{l_s}$$

Where l_i = length of void space or segregated ballast tank under consideration.

(c) Credit is only given in respect to double bottom tanks which are either empty or carrying clean water when cargo is carried in the tanks above.

(1) If the double bottom does not extend for the full length and width of the tank involved, the double bottom is considered nonexistent and the volume of the tanks above the area of the bottom damage must

be included in formula II of this section even if the tank is not considered breached because of the installation of such a partial double bottom.

(2) Suction wells may be neglected in the determination of the value h_i if such wells are not excessive in area and extend below the tank for a minimum distance and in no case more than half the height of the double bottom. If the depth of such a well exceeds half the height of the double bottom, h_i is taken equal to the double bottom height minus the well height.

(d) In the case where bottom damage simultaneously involves four center tanks, the value of O_s may be calculated according to formula III as follows:

$$O_s=\frac{1}{4}(\Sigma Z_i W_i+\Sigma Z_i C_i)$$

(e) Credit for reduced oil outflow from bottom damage may be applied to formula III for an installed emergency high suction cargo transfer system that—

(1) transfers within two hours oil equal to one half of the volume of the largest tank involved;

(2) has sufficient ballast or cargo tankage available to receive the transferred oil; and

(3) has the high suction piping installed at a height not less than the vertical extent of bottom damage (v_s).

4. *Allowable volumes of cargo tanks.*

(a) The allowable volume of a wing cargo tank (VOL_W) is equal to seventy-five percent of O_A. In a segregated ballast tank vessel VOL_W may equal O_A for a wing cargo oil tank located between two segregated ballast tanks each of length greater than l_s and width greater than t_c.

(b) The allowable volume of a center cargo tank (VOL_C) is 50,000 cubic meters.

5. *Allowable length of cargo tanks.* The allowable length of a cargo tank (l_s) is equal to the greater of 10 meters or more of the following values:

(a) If no longitudinal bulkhead is provided, 0.1L.

(b) If a longitudinal bulkhead is provided at the centerline only, 0.15L.

(c) If two or more longitudinal bulkheads are provided:

(1) For wing tanks, $0.2L$; and

(2) For center tanks—

If

(i) $\frac{b_i}{B}$

is equal to or greater than $\frac{1}{5}$, $0.2L$; or

If

(ii) $\frac{b_i}{B}$

is less than $\frac{1}{5}$; and—

(A) no centerline longitudinal bulkhead is provided,

$$\left(0.5\frac{b_i}{B}+0.1\right)L;$$

or

(B) a centerline longitudinal bulkhead is provided,

$$\left(0.25\frac{b_i}{B}+0.15\right)L.$$

APPENDIX B—SUBDIVISION AND STABILITY ASSUMPTIONS

1. *Source.* The procedures for the loading assumption calculations contained in this Appendix conform to Regulation 25 of Annex I of the International Convention for the Prevention of the Pollution from Ships, 1973, done at London, November 2, 1973.

2. *Loading Assumptions.* For the purpose of calculating subdivision and damage stability for a tank vessel, the operating drafts must reflect actual partial or full load conditions consistent with trim and strength of the vessel. Ballast conditions need not be considered if the tank vessel is not carrying oil in cargo tanks excluding oily residues. Loading condition must reflect the specific gravities of the cargo.

3. *Damage Assumptions.*

(a) Damage is applied to all conceivable locations along the length of the vessel as follows:

(1) For a vessel of more than 225 meters in length, anywhere in the vessel's length.

(2) For a vessel of more than 150 meters, but not exceeding 225 meters in length, anywhere in the vessel's length except where the after or forward bulkhead bounding a machinery space located aft is involved in the damage assumption. The machinery space is calculated as a single floodable compartment.

(3) For a vessel 150 meters or less in length, anywhere in the vessel's length between adjacent transverse bulkheads except the machinery space.

(b) The extent and the character of the assumed side or bottom damage, as defined in section 2 of Appendix A of this part, must be applied except longitudinal bottom damage within 0.3L from the forward perpendicular must be assumed to be the same as that for side damage. If any damage of lesser extent results in a more severe condition, such damage must be assumed.

(c) If damage involves transverse bulkheads as specified in paragraphs (a)(1) and (2) of this section, transverse watertight bulkheads must be spaced at least at a distance equal to the longitudinal extent of the assumed damage specified in paragraph (b) of this section in order to be considered effective. Where transverse bulkheads are spaced at a lesser distance, one or more of these bulkheads within such extent of damage must be assumed as nonexistent for the purpose of determining flooded compartments.

(d) If the damages between adjacent transverse watertight bulkheads is within the definition contained in paragraph (a)(3) of this section, no main transverse bulkhead or a transverse bulkhead bounding side tanks or double bottom tanks is to be assumed damaged, unless—

(1) the spacing of the adjacent bulkheads is less than the longitudinal extent of assumed damage defined in paragraph (b) of this section; or

(2) there is a step or a recess in a transverse bulkhead of more than 3.05 meters in length, located within the extent of penetrations of assumed damage. The step formed by the after peak bulkhead and after peak tank top is not regarded as a step for these calculations.

(e) If pipes, ducts, or tunnels are situated within the assumed extent of damage, there must be arrangements so that progressive flooding may not thereby extend to compartments other than those assumed to be floodable for each case of damage.

4. *Characteristic and Condition Assumption for Calculations.*

(a) Account must be taken of any empty or partially filled tanks, the specific gravity of cargoes carried, and any outflow of liquids from damaged compartments.

(b) The permeabilities are assumed as follows:

Intended space use:	Permeability
Stores	0.60
Accommodation	0.95
Machinery	0.85
Voids	0.95
Consumable liquids	[1] 0 or 0.95
Other liquids	[2] 0 or 0.95

[1] Whichever results in the more severe requirements.

[2] The permeability of partially filled compartments must be consistent with actual density and the amount of liquid carried.

(c) The buoyancy of any superstructure directly above the side damage is to be disregarded. The unflooded parts of superstructures beyond the extent of damage may be taken into consideration if they are separated from the damaged space by watertight bulkheads and no progressive flooding of these intact spaces takes place. Class I doors are allowed in watertight bulkheads in the superstructure.

(d) The free surface effect is to be calculated—

(1) at an angle of heel of 5 degrees for each individual compartment; or

(2) by assessing the shift of liquids by moment of transference calculations.

(e) In calculating the effect of free surfaces of consumable liquids, it is to be assumed that, for each type of liquid, at least one transverse pair or a single centerline tank has a free surface and the tank or combination of tanks to be taken into account is to be those where the effect of free surface is the greatest.

(R.S. 4417a(3) and (7), as amended (46 U.S.C. 391a(3) and (7); 49 CFR 1.46(n)(4) (40 CFR 3906).

Effective date. These regulations shall become effective on October 14, 1975.

Dated: October 6, 1975.

O. W. SILER,
Admiral, U.S. Coast Guard,
Commandant.

[FR Doc.75-27230 Filed 10-10-75;8:45 am]

Title 46—Shipping

CHAPTER I—COAST GUARD, DEPARTMENT OF TRANSPORTATION

[CGD 74-32C]

SUBCHAPTER D—TANK VESSELS

SUBCHAPTER E—LOAD LINES

PART 42—DOMESTIC AND FOREIGN VOYAGES BY SEA

SUBCHAPTER O—CERTAIN BULK DANGEROUS CARGOES

TANK VESSELS CARRYING OIL IN DOMESTIC TRADE

● Purpose. The purpose of these amendments to the regulations concerning certain seagoing U.S. tank ships and barges that carry oil in the United States domestic trade is to add references regarding the design and operation requirements that are published in 33 CFR Part 157. ●

On page 48280 of this issue of the FEDERAL REGISTER, the Coast Guard promulgates amendments to Chapter I of Title 33, Code of Federal Regulations. These amendments include the revision of § 151.35 (c) and (d)(2), and the addition of Part 157—Rules and Regulations for Protection of the Marine Environment Relating to Tank Vessels Carrying Oil in Domestic Trade.

Since Part 157 contains additional design, equipment, and operation requirements for certain tank ships, a note is added to Subchapters D and O directing the reader to those additional requirements.

Titles 33 and 46 of the Code of Federal Regulations contain damage stability standards for tank vessels. The damage stability standard in 46 CFR Subpart 42.20 is derived from the International Convention on Load Lines, 1966 (18 UST 1857, TIAS 6331, 640 UNTS 133). The

standard contained in 33 CFR § 157.21 is derived from the unratified International Convention for Prevention of Pollution from Ships, 1973. The purpose of the standards in both Conventions and the regulations is to keep a vessel, which suffers damage, afloat. The Coast Guard considers it an unnecessary burden on a designer to submit two sets of calculations for approval. Therefore, vessels that meet the requirements in 33 CFR 157.21 will be considered as an equivalent to meeting the subdivision and damage stability requirements of 46 CFR 42.20–5. Since § 157.21 reflects this ruling, the current amendment to § 42.20–5 will also reflect this ruling.

Since the amendments in this document are merely editorial changes, notice of proposed rule making is considered unnecessary and they may be made effective on October 14, 1975.

In consideration of the foregoing, chapter I of Title 46, Code of Federal Regulations is amended as follows:

1. Subchapters D and O are amended by inserting notes below the headings in the table of contents as follows:

NOTE: 33 CFR Part 157 contains additional design, equipment, and operation requirements for certain seagoing U.S. tank ships and barges that carry oil in the United States domestic trade.

2. Section 42.20–5 is amended by adding a new paragraph (a–1) to read as follows:

§ 42.20–5 Type "A" vessels.

* * * * *

(a–1) A vessel that meets the requirements in 33 CFR 157.21 is considered by the Coast Guard as meeting the requirements in this section.

* * * * *

(R.S. 4405, as amended (46 U.S.C. 375), R.S. 462, as amended (46 U.S.C. 416), sec 6(b)(1), 80 Stat. 937 (49 U.S.C. 1655(b)(1)); 49 CFR 1.46(b)).

Effective date. These amendments shall become effective on October 14, 1975.

Dated: October 6, 1975.

O. W. SILER,
Admiral, U.S. Coast Guard
Commandant.

[FR Doc.75–27228 Filed 10–10–75;8:45 am]

DEPARTMENT OF TRANSPORTATION

Coast Guard

[33 CFR Part 157]

[CGD 75-201]

TANK VESSELS CARRYING OIL IN DOMESTIC TRADE

Proposed Amendment to Regulations for Protection of the Marine Environment

● **Purpose. The Coast Guard is considering amending the oil pollution regulations by adding requirements for the distribution of required segregated ballast in certain seagoing U.S. tankships and barges certified to carry oil in the domestic U.S. trade.** ●

Written comments. Interested persons are invited to participate in the proposed rulemaking by submitting written views, data, arguments, objections, and comments to the Executive Secretary, Marine Safety Council (G-CMC/82), Room 8234, U.S. Coast Guard, Washington, D.C. 20590. Each person submitting comments should include his name and address, identify this notice (CGD 75-201), and give reasons for any recommendation. Comments received will be available for examination by interested persons in Room 8234, U.S. Coast Guard Headquarters, Washington, D.C.

No hearing is contemplated at this time on this proposal since substantive comments were received at public hearings held in Seattle, Washington, and Washington, D.C. in July 1974 on the proposed Interim Rules and Regulations for Protection of the Marine Environment relating to Tank Vessels Carrying Oil in Domestic Trade that appeared in the June 28, 1974, issue of the FEDERAL REGISTER (39 FR 24150). A public hearing may be held at a time and place set in a later notice in the FEDERAL REGISTER if requested by an interested person raising a genuine issue and desiring an opportunity to comment orally at a public hearing.

Closing date for comments. All communications received before November 13, 1975 will be evaluated before final action is taken on this proposal. Furthermore, all relative written comments submitted in response to the advance notice of proposed rulemaking concerning standards for pollution abatement for new tankships constructed for trade on the navigable waters of the United States, published in the January 26, 1973 issue of the FEDERAL REGISTER (38 F.R. 2467) and the proposed Interim Rules and Regulations for Protection of the Marine Environment Relating to Tank Vessels Engaged in Domestic Trade will be considered. These proposed regulations may be changed in light of the comments received.

The Coast Guard is publishing final rules on the design, equipment, and operation requirements for seagoing U.S. tank vessels carrying oil in domestic trade on page 48280 of this issue of the FEDERAL REGISTER. Many comments on the proposed rules were critical of the absence of a double bottom requirement. Other commenters noted that if segregated ballast space was required to control operational pollution, a secondary use of the segregated ballast tanks to serve as protective spaces in event of collision, ramming, or grounding accidents appeared to be a beneficial and logical extension of the regulations.

The concept of distributing required segregated ballast spaces are defensive space has been under discussion nationally and internationally since at least 1971. Briefly reviewing the background of this proposal, the Coast Guard in the January 26, 1973, advance notice of proposed rulemaking requested comments on the concept of placing segregated ballast in double bottom tanks. Later, in October 1973, the International Conference on Marine Pollution, 1973, was unable to agree upon double bottoms as the required arrangement of segregated ballast. In fact, no rules for the distribution were specified in the resulting International Convention for the Prevention of Pollution from Ships, 1973.

The U.S. position fostering double bottoms was founded on two years (1969 and 1970) of worldwide spill data which seemed to indicate a heavy preponderance of spillage due to bottom damaging accidents. An additional three years (1971-1973) of spill data is now available which, when combined with the earlier data, refutes the original position. The combined data reveals that side damaging accidents are as much a problem as the bottom damaging ones, both with respect to frequency of occurrence and amounts spilled.

As a check on the validity of these figures for worldwide accidents, information on incidents occurring within 50 miles of the U.S. coastline was developed for the same years. The correlation between the data is good in the area of frequency of incidents and relative outflow by accident type. Other regional studies by the United Kingdom and Finland also confirm the validity of the statistics, thus indicating the desirability of a more general and flexible solution than simply requiring double bottoms.

Certain known statistical factors about casualties in U.S. waters must be kept in mind. Since collisions and groundings are statistically comparable hazards, it is desirable in determining vessel design to optimize the distribution of required segregated ballast space as protection against both hazards as fully as possible. The surrounding physical characteristics of a port area have a great deal to do with accident types to be anticipated. Where channels are wide and the water deep, collisions would be expected to dominate. Where water is shallow with respect to using vessel drafts, groundings should be expected. There is a wide diversity of conditions encountered in U.S. ports and even within individual port areas. It is known that most accidents to tankers do not involve breaching of the hull. Likewise, a small number of accidents involve such high energy levels that no reasonable combination of construction features would be effective.

There are a great number of variables in designing a complex mechanism like a tank vessel. The designer, in making decisions among conflicting variables, is forced to seek an optimum rather than a maximum value for each variable. This optimization means that some very desirable characteristics must be reduced from the most desirable state to a less desirable state in order to accommodate other conflicting characteristics. The Coast Guard must be certain in specifying mandatory distribution of segregated ballast space for environmental protection that the safety of the vessel is not significantly lessened.

The distribution of segregated ballast spaces cannot be dictated solely by environmental protection considerations. Longitudinal strength, damage stability, safety with respect to fires and explosions, personnel safety, and the fostering of sound operating practice, as well as the mitigation of oil outflow must also be taken into account.

In order to better assess the question of proper arrangement of segregated ballast tanks, the Coast Guard solicited the aid of a number of knowledgeable naval architects and operating personnel, which was constituted by the American Petroleum Institute as a task group, to address solely the problem of optimum distribution of required segregated ballast space taking into account all of the factors set forth in the preceding paragraph. The task group found some distributions of segregated ballast or design configurations that were superior to other configurations in mitigating outflow; however, they were also convinced that environmental protection could not be the sole factor examined in determining the safe and appropriate distribution of segregated ballast spaces. The text of the report of the task group more fully discusses the study, the methods used, and the results and conclusions of the group. This report appeared as an appendix to the final environmental impact statement, "Regulations for Tank Vessels Engaged in Carriage of Oil in Domestic Trade," which was made available to the public and the President's Council on Environmental Quality on August 15, 1975. This statement is available upon request from the Executive Secretary (G-CMC/82), U.S. Coast Guard, Washington, D.C. 20590.

The Coast Guard carefully monitored the progress and work of the task group. Independent audits of the study by Mr. George C. Nickum, President of Nickum and Spaulding Associates, Inc., Seattle, Washington, and a member of the National Academy of Engineering; W. D. Gaither, Dean of the University of Delaware's College of Marine Studies, and Professor H. Benford, Professor of Naval Architecture and Marine Engineering, University of Michigan, have, without exception, found the study methodology sound and the results valid.

In view of the foregoing, the Coast Guard is proposing regulations which the study found would require the better design arrangements and rule out those design configurations found of little benefit.

Among the acceptable arrangements of segregated ballast under the proposed regulations are any one of the following:

1. Double bottoms.
2. Double sides.
3. "L" shaped wing tanks.
4. "J" shaped wing tanks.
5. Double hull.
6. Staggered wing tanks combined with reduced volume of intervening cargo tanks.

Specifically, it is proposed to revise § 157.09(d) to publish the standards upon which the Coast Guard would evaluate the adequacy of a tanker's distribution of required segregated ballast space. It is also proposed to add a new Appendix C to Part 157 which contains the formula for calculating the mixture of protected shell area and, if needed, the reduced hypothetical oil outflows. The new paragraph (d) is considered an interpretative rule of the International Convention for the Prevention of Pollution from Ships, 1973. The requirements in paragraph (d) will be applicable to new vessels contracted for after the effective date of final rules, with no limitation on delivery date. To do otherwise would penalize owners who enter into contracts for new vessels to be constructed in compliance with current regulations.

In consideration of the foregoing, it is proposed to amend Chapter 1 of Title 33, Code of Federal Regulations, as follows:

1. Section 157.08 is amended by adding paragraph (a)(4) to read as follows:

§ 157.08 Applicability.

(a) * * *

(4) The requirements in § 157.09(d) do not apply to vessels constructed under a contract awarded before ----------

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2. Section 157.09(d) is revised to read as follows:

§ 157.09 Segregated ballast.

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(d) Segregated ballast spaces within the cargo tank area must be distributed—

(1) Adjacent to the bottom and sides of the vessel; and

(2) To meet Appendix C of this part.

3. Section 157.24 is amended by adding new paragraph (c) to read as follows:

§ 157.24 Submission of calculations, plans and specifications.

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(c) Calculations to substantiate compliance with the segregated ballast distribution requirements in § 157.09(d).

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4. Part 157 is amended by adding new Appendix C, to follow Appendix B, to read as follows:

APPENDIX C—CRITERIA FOR DISTRIBUTION OF SEGREGATED BALLAST SPACES

1. *Source.* The criteria in this appendix interprets, constructively, the requirements of Regulation 13 of Annex I of the International Convention for the Prevention of Pollution from Ships, 1973, done at London, November 2, 1973.

2. *Formula.*

(a) The distribution of segregated ballast spaces for a new vessel of conventional form, that is, those having a block coefficient of .80 or greater, a length to depth ratio between 12 and 16, and a breadth to depth ratio between 1.5 and 3.5 must meet the following formula:

$$\Sigma PA_c + \Sigma PA_s \geqq 0.65\left(\frac{O_c}{O_A}\right) l_i\,(2D) + 0.45\left(\frac{O_c}{O_A}\right)(l_i)(B)$$

Where:

PA_c = The sum of both port and starboard side shell area where cargo is separated from side shell by a distance of at least 1.5 meters based upon projected molded dimensions.

PA_s = Bottom shell area where cargo is separated from bottom shell by a distance of at least two meters based upon projected molded dimensions.

l_i = The length from the collision bulkhead to the forward bulkhead of the machinery space.

D = Molded depth of the vessel.

O_c, O_s, O_A = Hypothetical values as defined by § 157.19(b).

B = Molded breadth as defined in § 157.03(c).

(b) A new vessel of unconventional form, that is, those whose parameters fall outside the values in paragraph (a) of this Appendix, must provide a level of protection equivalent to the level of protection afforded conventional vessels by paragraph (a) of this Appendix.

(RS 4417a (3) and (7), as amended (46 U.S.C. 391a (3) and (7)); 49 CFR 1.46(n)(4)).

Dated: October 6, 1975.

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